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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,514

03/15/2007

Kiichiro Kato

24-036-TN

1025

23400 7590 08/19/2010

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EXAMINER

VONCH, JEFFREY A

ART UNIT

PAPER NUMBER

1783

MAIL DATE

DELIVERY MODE

08/19/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,514	Applicant(s) KATO ET AL.	
	Examiner Jeff A. Vonch	Art Unit 1783	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/15/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendments filed June 24th, 2010 have been entered. Claims 1 and 2 are amended. Claims 4 and 5 are added.
2. The Section 103 Rejections of claims 1-3 have been maintained.

MAINTAINED REJECTIONS

Claim Rejections - 35 USC § 103

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (JP 1-125345) (hereinafter "Aoyama") in view of Xie et al. (U.S. Patent No. 6,503,620) (hereinafter "Xie").
4. Regarding claims 1 and 2, Aoyama teaches a pressure-sensitive adhesive sheet with a plurality of through-holes (claim 1 in the specification). These holes have a diameter preferably about 0.005 mm - 0.05 mm (5-50 μ m) (page 3, last paragraph). In the embodiment (page 4) the thickness of the adhesive layer is said to be 30 microns. "[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated if one of them is in the prior art" *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2131.03 I.
5. Also in the embodiment (pages 4-5 and Figure 2) the depicted sheet falls within the claimed hole density. In a 100 mm x 100 mm square, three pairs of rows could fit in the vertical direction with twenty columns in a horizontal direction (6 x 20) giving a hole density of 120 per

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100 cm². The density could possibly be as high as 10,000 holes per 100 cm² given the lowest diameter of through-hole with the lowest possible distance between them.

6. Aoyama does not explicitly teach a diameter of holes to be no more than 40 μm at the front surface of the decorative sheet. However, the overall hole diameter range disclosed (5 to 50 μm) largely encompasses the given range of below 40 μm. Furthermore, it would have been obvious to one of ordinary skill in the art to keep the holes as small as possible in order to avoid damaging the appearance of the decorative sheet [Prior Art, paragraph 3].

7. However, Aoyama does not teach a storage modulus at T_{\max} (wherein $20^{\circ}\text{C} \leq T_{\max} \leq 130^{\circ}\text{C}$) of not less than 4.5×10^3 Pa and a loss tangent at T_{\max} of not more than 0.78.

8. Xie teaches a laminate comprised of a facestock bonded to a pressure sensitive adhesive layer (pressure-sensitive adhesive sheet) wherein the adhesive layer material has its storage modulus and loss tangent measured from $T_{\max} - 60^{\circ}\text{C}$ to 200°C (col. 26, lines 51-54). All blends have a storage modulus (G') equal to or greater than 3.7×10^3 Pa at their lowest point (Table X). Xie teaches that Blend 1 has a storage modulus of 3.6×10^4 Pa and a loss tangent of 0.3 at 120°C (Table X). Blend 4 has a storage modulus at 25°C of 2.4×10^8 Pa and a loss tangent of 0.1 (Table X). Xie teaches that the laminate is a label to be adhered to an adherend, although Xie may not disclose the temperature exposure. With respect to Claim 1, ambient temperature exposures would be expected to include the claimed temperature range.

9. It would have been obvious to one of ordinary skill in the art at the time of invention to provide Aoyama with the claimed storage modulus and loss tangent. One of ordinary skill in the art would have been motivated to reduce adhesive flow and bleed from label/tape edges and maintain integrity at elevated temperatures (col. 27, line 62 - col. 28, line 50).

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10. Claims 3/1 & 3/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (JP 1-125345) (hereinafter "Aoyama") in view of Xie et al. (U.S. Patent No. 6,503,620) (hereinafter "Xie"), as applied to claims 1-2 above, further in view of Andriash (U.S. Patent No. 5,679,435) (hereinafter "Andriash").

11. Aoyama/Xie teach a perforated pressure-sensitive adhesive sheet used for decorative purposes and having the proper storage modulus and loss tangent claimed as recited above (see Section 103 Rejections).

12. Aoyama/Xie do not teach the through-holes are formed through laser processing.

13. Regarding claims 3/1 and 3/2, Andriash teaches perforation of pressure sensitive adhesive sheets over mechanical punching due to the dies becoming gummed up with the adhesive layer (col. 5, lines 34-40 & col. 3, lines 60-67).

14. It would have been obvious to one of ordinary skill in the art at the time of invention to apply laser perforation to the form the holes of the pressure-sensitive adhesive sheet of Aoyama. One of ordinary skill in the art would have been motivated use a method that cuts through multiple materials easily and does not clog when cutting through an adhesive layer (col. 5, lines 34-40 & col. 3, lines 63-67).

NEW REJECTIONS

Claim Rejections - 35 USC § 103

15. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (JP 1-125345) (hereinafter "Aoyama") in view of Xie et al. (U.S. Patent No. 6,503,620) (hereinafter

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"Xie"), as applied to claims 1-2 above, further in view of Liu et al. (U.S. Patent No. 6,627,844 B2) (hereinafter "Liu").

16. Aoyama/Xie teach a pressure-sensitive adhesive sheet having a plurality of through-holes with the through-hole geometry claimed and the adhesive layer having the loss tangent at the temperature range claimed as recited above. Aoyama teaches having holes that are small enough that they would not damage the appearance of the pressure-sensitive adhesive sheet [Prior Art, paragraphs 2-3].

17. Aoyama/Xie do not teach having the diameter of the hole decrease gradually from the pressure-sensitive adhesive surface to the pressure-sensitive adhesive sheet front surface.

18. Liu teaches laser perforation as a method to form micron and submicron sized holes (col. 1, lines 32-35) where the entry is larger than the exit (Fig. 2e) where the taper is inherent to the process of laser drilling (col. 1, lines 48-50).

19. It would have been obvious to one of ordinary skill in the art at the time of invention to form tapered holes using the method of Liu. One of ordinary skill in the art would have been motivated to form tapered holes where the larger diameter is on the adhesive layer side in order to not damage the appearance of the pressure-sensitive adhesive sheet [Prior Art, paragraph 3].

Response to Arguments

20. Applicant's arguments have been fully considered but they are not persuasive.

21. Applicant argues that Xie teaches laser printing a pressure-sensitive adhesive sheet and that laser printing could not be applied to a pressure-sensitive adhesive with holes (pages 6-7).

Xie may teach laser printing but Aoyama teaches a decorative adhesive sheet with holes meaning

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that a form of providing decoration such as laser printing would be required. It would have been obvious to one of ordinary skill in the art to provide a decorative adhesive sheet with decoration before perforating it. There is nothing in either specification preventing that method of decorative application. Furthermore there is nothing that would explicitly prevent the holes from being able to prevent air entrapment.

22. Applicant argues that one would not be motivated to reduce adhesive flow and bleed from label/tape edges at elevated temperatures (pages 7-8). Applicant argues that decorative sheets are limited to placement on wood-based construction and would not be exposed to elevated temperatures. There is nothing in Aoyama that provides for that limitation nor is it a well-known definition in the art. Decorative sheets can be placed on any surface requiring decoration such as a car part, wall, etc. Many surfaces requiring decoration become heated such as a car window or exterior wall. It would have been obvious to one of ordinary skill in the art to apply an adhesive such as the one in Xie to a decorative sheet that would be placed on a surface that would be subject to elevated temperatures.

23. Furthermore, Xie teaches that laser printing (which would provide decoration in a decorative sheet as recited above) causes elevated temperatures (col. 27, line 62 - col. 28, line 50). Also, laser perforation as taught by Andriash would also cause heating of the adhesive laser. In the case of either method of laser processing, it would be beneficial to prevent the running or bleeding of adhesive upon the pressure-sensitive adhesive sheet being subject to elevated temperatures.

24. In addition, there is nothing in claim 1 that would subject Applicant's pressure sensitive adhesive sheet to high temperatures.

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25. One of ordinary skill in the art would have been motivated to provide diameters well within the range of 40 μm as recited above. The newly added limitation does not patentably distinguish the invention from the prior art.

26. In conclusion, both Aoyama and Xie teach pressure-sensitive adhesive sheets and would fall within the field of invention. One of ordinary skill in the art would have been motivated to combine them, especially if Aoyama's decorative sheet was to be laser printed or placed in on a surface where it would be subject to elevated temperatures.

27. Applicant argues that Andriash does not cure the deficiencies of previous rejection and that the diameter of the through-holes in Andriash is larger than the claimed invention (page 10). Although the holes in Andriash may be larger than the claimed invention, it is merely the process that is being motivated to provide Aoyama with through-holes. One of ordinary skill in the art would understand how to form holes the proper size.

28. Furthermore, it is well known in the art as taught in Liu that laser perforation over any other method because it allows for micron sized holes (col. 1, lines 39-45) (with an exit hole example being 20 microns [col. 5, lines 25-27]).

29. Applicant also argues that Andriash teaches through-holes can be made with conventional dies (page 11). Andriash explicitly teaches away from using conventional dies (col. 5, lines 32-40). This cannot be used as support that the through-holes formed are not tapered as argued by Applicant.

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff A. Vonch whose telephone number is (571) 270-1134. The examiner can normally be reached on Monday to Thursday 8:30-6:00 EST.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1783

/J. A. V./
Jeff A. Vonch
Patent Examiner, Art Unit 1783
August 13th, 2010